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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/586,918	07/24/2006	Tetsuya Suzuki	06500/LH	8247
1933 7590 02/24/2009 FRISHAUF, HOLTZ, GOODMAN & CHICK, PC 220 Fifth Avenue 16TH Floor NEW YORK, NY 10001-7708				
EXAMINER WEISS, HOWARD				
ART UNIT 2814		PAPER NUMBER		
MAIL DATE 02/24/2009		DELIVERY MODE PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/586,918

**Applicant(s)**

SUZUKI ET AL.

**Examiner**

HOWARD WEISS

**Art Unit**

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/ISAC)
- Paper No(s)/Mail Date 10/4/2007, 9/29/2006, 7/24/2006
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

Attorney's Docket Number: 10/586,918  
Filing Date: 7/24/2006  
Continuing Data: 371 of PCT/JP06/00550 (1/17/2006)  
Claimed Foreign Priority Date: 1/17/2005 (JPX)  
Applicant(s): Suzuki et al. (Yohidaya, Murakami)

Examiner: Howard Weiss

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 1 to 3, 6, 7 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yagi (JP 05-175598) and Umeo (JP 57-109387).

Yagi shows most aspects of the instant invention (e.g. Figures 1 and 2) including:

- a n-GaN substrate **1**, first Clad layer **4**, active layer **5**, second clad layer **6**, contact layer **10** and first **11** and second **12** electrodes
- said active layer comprising a plurality of barrier layers **5a** between which a plurality of quantum wells **5b** reside made of  $\text{In}_{x_a}\text{Ga}_{(1-x_a)}\text{As}$  with  $0.05 \leq x_a \leq 0.20$ , of

a thickness between 2.5 to 5 nm approximately (i.e. 3 nm; see Paragraph [0012] of PAJ machine translation) and strained

- center wavelengths of the device between 800 to 850 nm approximately (Paragraph [0020] *ibid*)
- said device manufactured as claimed (see Paragraph [0017] *ibid*)

Yagi does not show at least one well layer having a bandgap wavelength different from the other wells. Umeo teaches to form at least one well with a different bandgap wavelength different from the other wells to produce lights of different wavelengths (see Purpose). It would have been obvious to a person of ordinary skill in the art at the time of invention to form at least one well with a different bandgap wavelength different from the other wells as taught by Umeo in the device and process of Yagi to produce lights of different wavelengths.

In reference to the claim language pertaining to the characteristic lattice distortion and other claimed characteristics, the claiming of a new use, new function, or unknown property which is inherently present in the prior art does not necessarily make the claim patentable. *In re Best*, 195 USPQ 430, 433 (CCPA 1977) and *In re Swinehart*, 439 F. 2d 210, 169 USPQ 226 (CCPA 1971); please see MPEP § 2112. Since Yagi and Umeo show all the features of the claimed invention, the characteristic lattice distortion and other claimed characteristics are an inherent property of Yagi and Umeo's invention.

3. Claims 11 to 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yagi and Umeo ,as applied to Claim 1 above, and further in view of Lenth et al. (U.S. Patent No. 5,038,352).

Yagi and Umeo show most aspects of the instant invention (Paragraph 2) except for the external resonator which receives the light form the semiconductor optical device (i.e. laser) and comprises a wavelength selection means and an optical means

which returns the light to the laser. Lenth et al. teach (e.g. Figure 1) teach to include an external resonator **10** which receives the light **20** from the laser **12** and comprises a wavelength selection means **52** and an optical means **14,16,18** which returns the light **40** to the laser to have a laser system with optical feedback having a minimum number of optical parts (Column 2 Lines 34 to 36). It would have been obvious to a person of ordinary skill in the art at the time of invention to include an external resonator **10** which receives the light **20** from the laser **12** and comprises a wavelength selection means and an optical means which returns the light to the laser as taught by Lenth et al. with the device of Yagi and Umeo to have a laser system with optical feedback having a minimum number of optical parts.

4. Claims 4, 5, 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yagi and Umeo, as applied to Claim 1 above, and further in view of Liang et al. (U.S. Patent No. 6,593,602).

Yagi and Umeo show most aspects of the instant invention (Paragraph 2) except for the semiconductor optical device being a SLD or semiconductor optical amplifier comprising a ridge portion severing a gain region and an absorption region which absorbs light and current. Liang et al. teach (e.g. Figures 1 and 2) to form a semiconductor optical device being a SLD or semiconductor optical amplifier comprising a ridge portion **9a** severing a gain region and an absorption region which absorbs light **31** and current to obtain a relatively large light output without lowering the luminescent efficiency (Column 1 Lines 46 to 49). It would have been obvious to a person of ordinary skill in the art at the time of invention to form a semiconductor optical device being a SLD or semiconductor optical amplifier comprising a ridge portion severing a gain region and an absorption region which absorbs light and current as taught by Liang et al. in the device of Yagi and Umeo to obtain a relatively large light output without lowering the luminescent efficiency.

5. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yagi, Umeo and Lenth et al., as applied to Claim 11 above, and further in view of Liang et al. (U.S. Patent No. 6,593,602).

Yagi, Umeo and Lenth et al. show most aspects of the instant invention (Paragraph 2) except for the semiconductor optical device comprising a gain region and an absorption region which absorbs light and current. Liang et al. teach (e.g. Figures 1 and 2) to form a gain region and an absorption region which absorbs light **31** and current to obtain a relatively large light output without lowering the luminescent efficiency (Column 1 Lines 46 to 49). It would have been obvious to a person of ordinary skill in the art at the time of invention a gain region and an absorption region which absorbs light and current as taught by Liang et al. in the device of Yagi, Umeo and Lenth et al. to obtain a relatively large light output without lowering the luminescent efficiency.

### ***Conclusion***

6. Papers related to this application may be submitted directly to Art Unit 2814 by facsimile transmission. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The Art Unit 2814 Fax Center number is **(571) 273-8300**. The Art Unit 2814 Fax Center is to be used only for papers related to Art Unit 2814 applications.
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Howard Weiss at **(571) 272-1720** and between the hours of 7:00 AM to 3:00 PM (Eastern Standard Time) Monday through Friday or by e-mail via [Howard.Weiss@uspto.gov](mailto:Howard.Weiss@uspto.gov). If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy, can be reached on **(571) 272-1705**.

8. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at **866-217-9197** (toll-free).
9. The following list is the Examiner's field of search for the present Office Action:

Field of Search	Date
U.S. Class / Subclass(es): 257/ E33.054; 372/45.012	2/19/2009
Other Documentation: PLUS Analysis Report	2/4/2009
Electronic Database(s): EAST, IEL, PAJ	2/19/2009

HW/hw  
24 February 2009

/Howard Weiss/  
Primary Examiner  
Art Unit 2814